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The identities of *Otitoma* and *Antimitra* (Mollusca: Gastropoda: Conidae and Buccinidae)

by

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ABSTRACT

The marine gastropod taxon *Otitoma* Jousseaume, 1898, previously regarded as a *nomen dubium*, is shown to be a valid genus and a senior subjective synonym of *Thelecytharella* Shuto, 1969. A neotype of *Otitoma ottitoma* Jousseaume, 1898, type species of *Otitoma*, is designated. *O. ottitoma* falls within the range of morphological variation of *Pleurotoma cyclophora* Deshayes, 1863. *Daphnella crenulata* Pease, 1868, is shown to be based on a juvenile of *P. cyclophora*. Sixteen described taxa are here referred to *Otitoma* for the first time. The genus *Antimitra* Iredale, 1917, previously treated as turrid, is transferred to the Buccinidae, its type species, *Pleurotoma aegrota* Reeve, 1845, being based on the juvenile of a *Metula* sp.

INTRODUCTION

A very high percentage of species- and genus-rank taxa within the turrid Conoidea remains to be satisfactorily defined. One such taxon, *Otitoma* Jousseaume, 1898, has been unrecognised on account of the apparent impossibility of identifying its type species. This name was introduced as "*Otitoma ottitoma* gen. et spec. nov.", and accompanied only by a very brief description, without a figure. Discovery of an authentic specimen now renders its identification possible.

ABBREVIATIONS

ANSP	Academy of Natural Sciences, Philadelphia, U.S.A.
BMNH	The Natural History Museum, London
UCBL	Ecole de Mines Université Claude Bernard, Lyon, France
MCZ	Museum of Comparative Zoology, Harvard, U.S.A.
MNHN	Muséum National d'Histoire Naturelle, Paris
NMSA	Natal Museum, Pietermaritzburg, South Africa
NMWC	National Museum of Wales, Cardiff, U.K.

TAXONOMY

Family Conidae Fleming, 1822
Subfamily Mangeliinae Fischer, 1883

The following genus is known only from empty shells, and its systematic position remains unconfirmed. Sysoev (1997) referred it to 'Conoidea incertae sedis'. However, on general shell characters I tentatively retain it in the Mangeliinae.

Otitoma Jousseaume, 1898

Otitoma Jousseaume, 1898: 106. Type species (virtual tautonomy) *Otitoma ottitoma* Jousseaume, 1898.
Thelecytharella Shuto, 1969: 208 (as subgenus of *Euclathurella*). **Syn. n.** Type species (o.d.) *Agladrillia oyamai* Shuto, 1965, Miocene of Philippines (and Japan).
[Junior synonyms of *Thelecytharella* Shuto, 1969, were listed by Kilburn (1995: 262).]

Remarks: Although Powell (1966: 126) regarded *Otitoma* as a *nomen dubium*, its type species can now be recognised and proves to be a synonym of the widely distributed *Pleurotoma cyclophora* Deshayes, 1863. Powell (1966) and others have referred *P. cyclophora* to *Daphnella* Hinds, 1844, subgenus *Hemidaphne* Hedley, 1918. However, the three-whorled protoconch is domed, with protoconch II smooth, except for a few arcuate axial riblets near its termination and extremely minute granular sculpture, and totally lacks the diagonally reticulate sculpture, characterisitic of the genus *Daphnella*. In overall characters, *P. cyclophora* agrees well with members of the group previously called *Thelecytharella* (see Kilburn 1995), over which *Otitoma* clearly has priority. The radula of this genus remains unknown.

Daphnella crenulata Pease, 1868 (Fig. 14), is based on a juvenile of *Otitoma cyclophora.* Although Powell (1966) referred *D. crenulata* to *Antimitra* Iredale, 1917, that taxon has been much-misunderstood, and in fact its type species, *Pleurotoma aegrota* Reeve, 1845, shows no characters indicative of a turrid genus. The two syntypes (Fig. 1) appear to be based on juveniles of a species of *Metula* Adams & Adams, 1853, family Buccinidae.

Of described turrids, I refer the following Recent species, which have been distributed in the published literature amongst a wide range of different genera, to *Otitoma*. I have examined types of all species, with the exception of *Hemidaphne gouldi* for which

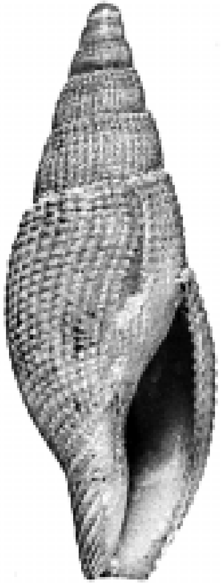


Fig. 1. *Antimitra* [= *Metula*] *aegrota* (Reeve, 1845): Syntype of *Pleurotoma aegrota*, BMNH 1963924, Singapore, 7 fath. [= approx. 13 m]; 10.5 x 3.7 mm.

SEM's are available. Literature references to these taxa are omitted, as these can be found in Tucker (2004).

carnicolor Hervier, 1896, *Drillia*
  crenulata Pease, 1868, *Daphnella* [= *Pleurotoma cyclophora*]
crokerensis Shuto, 1983, *Austropusilla (Metaclathurella)*
cyclophora Deshayes, 1863, *Pleurotoma*
gouldi Yen, 1944, *Hemidaphne* [synonym *Mangelia pura*]
kecil Sysoev, 1997, *Thelecytharella*
kwandangensis Schepman, 1913, *Drillia*
lirata Reeve, 1845, *Pleurotoma*
metuloides Kilburn, 1995, *Thelecytharella*
mitra Kilburn, 1986, *Mitrellatoma*
oneili Barnard, 1958, *Drillia*
  ottitoma Jousseaume, 1898, *Otitoma* [= *Pleurotoma cyclophora*]
  pura Gould, 1860 (*non* Reeve, 1846), *Mangelia* [= *Hemidaphne gouldi*]
rubiginosa Hinds, 1843, *Clavatula*
timorensis Schepman, 1913, *Drillia*
vitrea Reeve, 1845, *Pleurotoma*.

Although *Otitoma ottitoma* is synonymised with *O. cyclophora*, the following description is based on the *ottitoma* morph, primarily on series from Mozambique, which agree well with the neotype.

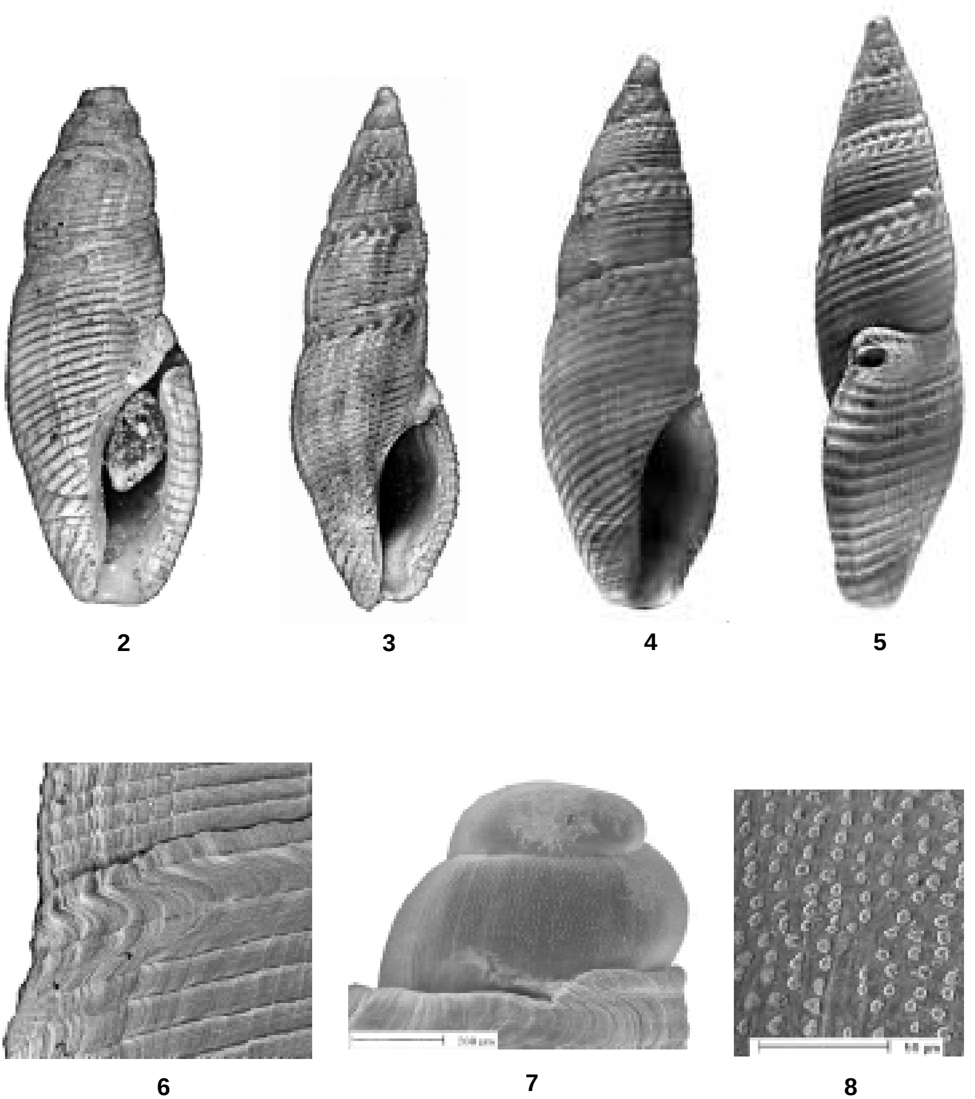
Otitoma cyclophora (Deshayes, 1863), **comb. n.**

Figs 2–14

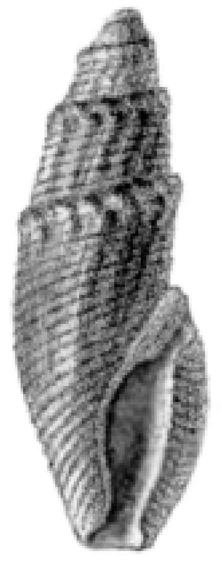
Pleurotoma cyclophora Deshayes, 1863: 111, pl. 12, figs 19–21. Type locality: Réunion Is.
Hemidaphne cyclophora: Hedley 1922: 332, pl. 54, fig. 168; Hasegawa, Okutani & Tsuchida 2000: 663, pl. 330, fig. 221.
Daphnella (*Hemidaphne*) *cyclophora*: Powell 1966: 124; Cernohorsky 1978: 160, pl. 57, fig. 4; Higo, Calloman & Goto 1999: 328.
Daphnella crenulata Pease, 1868: 221, pl. 15, fig. 20; Tryon 1884: 304, pl. 25, fig. 55; Johnston 1994: 11, pl. 7, fig. 3 (lectotype). **Syn. n.** Type locality: Polynesia [Howland Island, restricted Johnston 1994].
Antimitra crenulata: Powell 1966: 135.
Otitoma ottitoma Jousseaume, 1898: 106. **Syn. n.** Type locality: Aden [here restricted] and Djibouti.
Ottitoma ottitoma [sic]: Fulton 1922: 27.

Description (based on series from northern Mozambique, Figs 3–8): Shell fusiform-cylindrical, breadth/length 0.26–0.35, aperture length/total length 0.38–0.48; spire somewhat cyrtoconoid, suture shallow, whorls weakly convex, last whorl subcylindrical, slightly asymmetrical (base inclined to right), aperture narrowly elliptical, slightly constricted at entrance to siphonal canal, latter short, terminally slightly expanded, somewhat obliquely truncate, very shallowly indented. Outer lip shallowly convex and opisthocline in side view, stromboid notch strong and bevelled, anal sinus deep and lacrimiform, opening strongly constricted by parietal pad; interior of outer lip smooth, columella microscopically rugose.

Sculptured by thin spiral ridges, subsutural cord ill-defined, somewhat impressed on later whorls, growth lines coarse, often rendering the spirals weakly granular, regularly finely plicate in intervals on latter part of last whorl, occasionally forming



Figs 2–8. *Otitoma cyclophora* (Deshayes, 1863). 2. Neotype of *Otitoma ottitoma* Jousseaume, 1898 [here designated], NMWC 1955.158.33.58, Aden; 6.5 x 2.5 mm. 3. Conducia Bay, Northern Mozambique, NMSA J4124, K. Grosch; 11.0 x 3.4 mm. 4–5. Lunga Bay, Northern Mozambique, inshore, under rock slabs on muddy sand, NMSA H376, K. Grosch; 10.6 x 3.5 mm. 6–8. ESEM, Conducia Bay, Northern Mozambique, NMSA J4124. 6. ESEM of sutural region of previous. 7. ESEM of protoconch, scale line = 200 mm. 8. ESEM of microshagreen sculpture on protoconch, scale line = 50 mm.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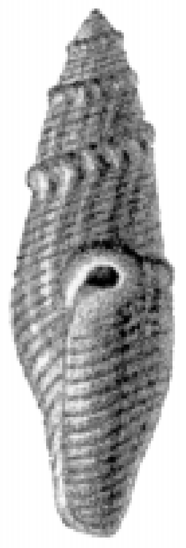
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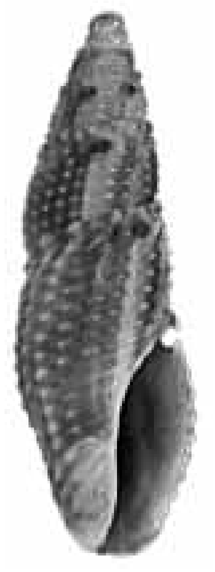
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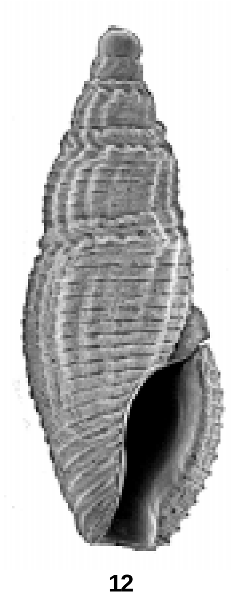
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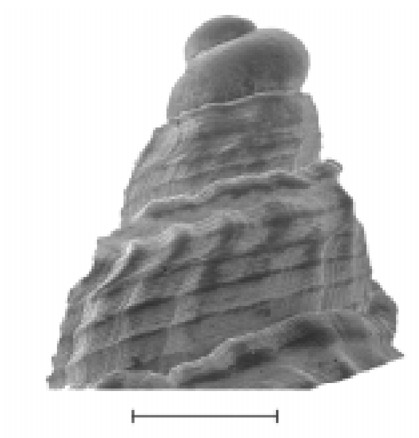
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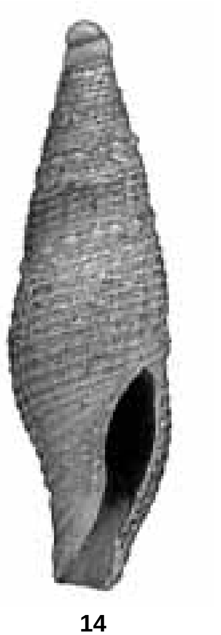
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Figs 9–14. *Otitoma cyclophora* (Deshayes, 1863). 9–10. Type figures of *Pleurotoma cyclophora* (after Deshayes, 1863: pl. 12, figs 19, 21), Réunion Is. 11–12. Topotypes from Réunion Is., M. Jay, 8.0 x 2.4 mm and 6.3 x 2.3 mm (ESEM). 13. Protoconch and early whorls, scale-line = 500 mm. 14. Lectotype of *Daphnella crenulata* (designated Johnston, 1994), ANSP 15694, Polynesia [Howland Island, *fide* Johnston]; length 6.5 mm.

irregular axial riblets elsewhere. Spiral ridges much narrower than their intervals (mostly approx. 0.2 their width, on base sometimes subequal to them), 5–6 relatively close spirals on teleoconch I, 6–9 on penultimate whorl (excluding subsutural cord), 22–25 on last whorl (15–18 on outside of terminal varix), the basal 7 sometimes higher, rounder and more sharply incised than the others, sometimes weak and angular; 1–2 ridges bordering subsutural cord are finer than the others. Sulcus ill-defined; subsutural cord distinct; initially similar in strength to spiral ridges but separated by a minutely wider gap and forming a slight shoulder at suture, from second whorl subsutural cord is convex (but little stronger) and nodular; on last whorl the subsutural cord becomes flattened, with two thin, undulating spiral threads and lunulate growth lines. Intervals between spiral ridges with dense, microscopic spiral striae.

Colour uniform pale buff, protoconch white.

Protoconch bluntly papillose, of approx. 1.7 convex whorls, superficially smooth but under high magnification dense, somewhat spirally-aligned granules (see Fig. 8) are visible; suture deep; breadth 0.52–0.59 mm.

Operculum present, unguiform with terminal nucleus (neotype).

Dimensions NMSA (H376, largest and smallest examples): 10.9 x 3.5 mm, 7.7 x 2.1 mm.

Type material: *Pleurotoma cyclophora*: types evidently lost (not traced in MNHN nor UCBL).

Daphnella crenulata: lectotype (des. Johnston 1994) ANSP 15694, paralectotype MCZ 221177.

Otitoma ottitoma: no types are extant amongst the Jousseaume collection in the MNHN. However, a specimen in the Melvill-Tomlin collection (NMWC 1955.158.33.58) from Aden, identified as *O. ottitoma*, is accompanied by a label (in Hugh Fulton's handwriting, *teste* Ms A. Trew, 6/iv/94) stating "named by Dr Jouss. 31/7/95 (not yet named)". This shell might be interpreted as a syntype, but in order both to fix the identity of the genus and species and to avert any possible dispute, it is here designated as neotype. Although it lacks the early whorls (remaining dimensions 6.5 x 2.5 mm), the specimen can be matched closely among samples from northern Mozambique.

Material examined from Indian Ocean: SOUTH YEMEN: Aden, neotype. N. MOZAMBIQUE: Lunga Bay, under rock slabs, on muddy sand and *Thalassodendron*, NMSA H376, K. Grosch; Nacala, NMSA K9329, don. Mrs H. Boswell; Conducia Bay, NMSA J4124, K. Grosch. MASCARENES: Réunion Is., M. Jay; Gris Gris Beach, Mauritius, NMSA K9329, R. Kilburn, D. Herbert.

Distribution: South Yemen and southern Red Sea, south to northern Mozambique and Mascarene Islands, and east (published records) to southern Japan and Polynesia.

Remarks: It was initially believed that *Otitoma ottitoma* (Figs 2–8) could be recognized as a species distinct from *O. cyclophora*, based on comparison between a topotypic series of the latter (Figs 9–13) and Mozambican samples that agree with the neotype of *O. ottitoma*. Thus in typical *O. cyclophora* the last whorl is somewhat less asymmetrical, the subsutural cord is more convex and bears a row of stronger tubercles, which crenulate or finely plicate the suture; beneath the sulcus is a corresponding row of more elongate tubercles, each pair joined by an arcuate axial riblet (representing an early anal sinus scar), which is indented by the sulcus. Spiral ridges are usually somewhat fewer (9–10 on penultimate whorl, against 6–9 in form *ottitoma*) and more strongly granular. However, these differences are not always clear-cut and appear to represent population-level or geographic variation. The subsutural plicules are never as strong as illustrated by Deshayes (1863, see Figs 9–10).

The lectotype of *Daphnella crenulata* Pease, 1868 (Fig. 14) is a juvenile with a broken lip, but resembles topotypes of *O. cyclophora* in similar condition.

Family Buccinidae Rafinesque, 1815

Metula Adams &. Adams, 1853

Metula Adams & Adams, 1853: 84. Type species (s.d. Kobelt 1876): *Buccinum clathratum* Adams & Reeve, 1850, *non* Kiener, 1834 [= *Metula amosi* Vanatta, 1913].
Antimitra Iredale, 1917: 329. **Syn. n**. Type species (o.d.): *Pleurotoma aegrota* Reeve, 1845.

Remarks: Powell's 1966 interpretation of *Antimitra* was based on a raphitomine turrid misidentified as *Pleurotoma aegrota*, but with little resemblance to syntypes of that. The apical whorls in particular differ widely – compare Shuto (1975: pl. 6, fig. 1, and Fig. 1, herein), and the description given by Powell (1966: 135).

Metula aegrota (Reeve, 1845) **comb. n.**

Fig. 1

Pleurotoma aegrota Reeve, 1845: pl. 31, sp. 276. Type locality: Singapore, 7 fath. [= approx. 13 m].
Antimitra aegrata [*sic*]: Shuto 1975: 168, pl. 6, figs 1 (protoconch), 2 (lip profile).
NOT *Antimitra aegrota*: Powell 1966: 135, pl. 22, fig. 3.

Type material: Two syntypes BMNH 1963924.

Remarks: The identity of *Metula aegrota* is based on juvenile shells, and remains to be established with more precision through direct comparison with growth series of described species of genus *Metula*. Unfortunately the apical whorls in adult shells are almost always eroded or damaged.

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